607/80
395

FLAME PHOTOMETER

RECEIVED
OCT 7 1965
GROUP 410

607/80

- A self-contained instrument

for the accurate estimation of alkali metals

CAT. No. 4.100

One measurement per minute

WITH THIS ACCURATE, SENSITIVE AND SIMPLE INSTRUMENT

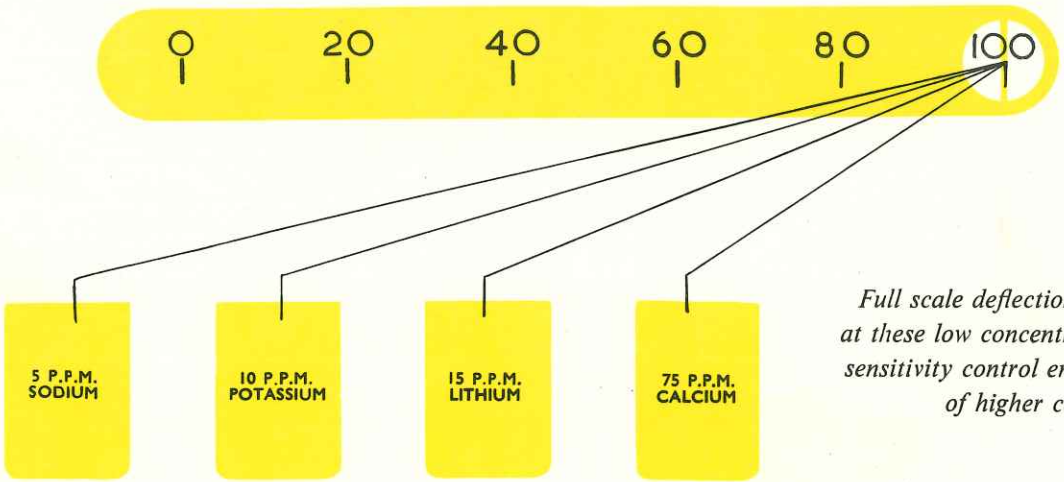
• *Simple in operation.* • *Compact in design.* • *Economic in use*—only 2 ml. sample needed. • *Accurate and reproducible* within ±1%. • *Unaffected by atmospheric conditions.* • *Non-corrosible metal atomiser* eliminates all glassware. • "*EEL*" *self-generative photocell* energises the galvanometer directly, eliminating amplifiers, fluctuation and drift. • *Low temperature flame* enormously reduces interference effects. • *Compressed air* is derived from airline, cylinders or "EEL" Air Compressor. • *Gas* may be coal gas, or almost any oil-derived gas in bottle or cylinder. • Avoidance of oxygen or acetylene eliminates explosion risks.

ANCILLARY EQUIPMENT

Sodium and potassium filters (gelatine type). Calcium and lithium filters (interference type). Sample beakers and stand. "EEL" Air Compressor (see back page). Rapid-sampling attachment (see leaflet 1702.2).

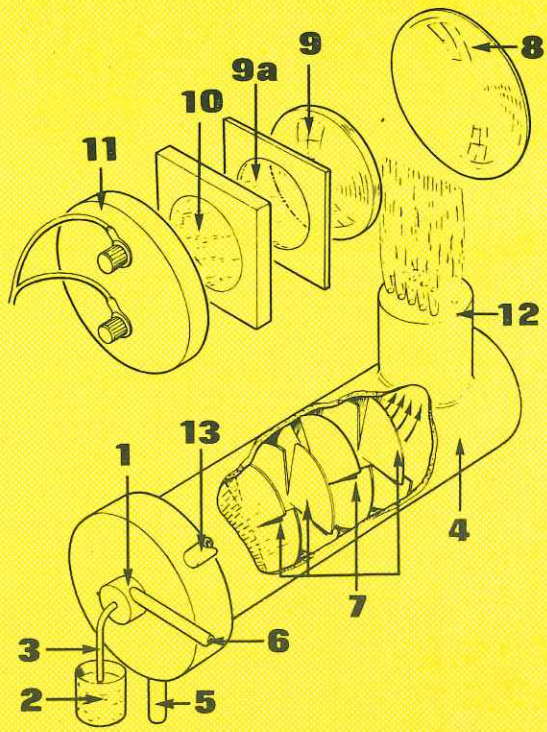
Dimensions — 16 x 9½ x 13½ ins or 41.6 x 24.1 x 34.3 cms
Weight — 20lbs or 9.07 kilos

Full Scale Deflection with these low concentrations



Full scale deflection is guaranteed at these low concentrations, but the sensitivity control enables solutions of higher concentration to be determined.

Arrangement *for EEL Flame Photometer*



DESCRIPTION.

The illustration shows the general arrangement of the atomiser, combustion chamber and optical system which form the nucleus of the instrument. Air is introduced round the atomiser nozzle through the inlet (6) at a controllable pressure, indicated by the gauge on the front of the instrument. Gas enters the mixing chamber through the tube (13) and is likewise controllable. The airflow round the atomiser is applied to draw the sample (2) up the capillary tube (3) and through the atomiser, which injects it in a fine spray into the mixing chamber (4), larger droplets falling from the air-stream to pass through the drain tube (5). The baffles (7) produce an even mixture of gas, air and sample, which passes to the burner (12) and is ignited, to burn with a broad, flat flame within a well-ventilated chimney.

Light from the flame is collected by the reflector (8) and focused by the lens (9) on to the photocell (11), the critical wavelength being isolated by the interchangeable filter (10). The photocell output is then applied through a " Sensitivity " control, to deflect a built-in taut-suspension reflecting galvanometer in proportion to the intensity of the emitted light.

All parts in contact with the sample are non-corrosible, and easily dismantled for inspection. Routine cleaning is limited to passing distilled water through the system at the end of each test period.

Applications

AGRICULTURE
ALL TYPES OF RESEARCH
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FERTILISERS
FOOD MANUFACTURE
GLASS
GEOLOGICAL SURVEYS
HORTICULTURE
METALLURGY
OIL REFINING
ETC., ETC., ETC.

When ordering, please state if instrument is to be used from power supply other than 230 volts 50 cycles A.C. Mains. Also state type of gas supply to be used.

The EEL Air Compressor

The vast majority of EEL Flame Photometer users realise the importance of a steady supply of clean compressed air to the instrument. For this purpose, the manufacturers wholeheartedly recommend the instrument described below. Its advantages are as follows:—

1. Ready availibity for instant use.
2. Space economy. It may be stored beneath the bench.
3. Elimination of the inconvenience and delay unavoidable when using cylinders.
4. Elimination of expenditure on cylinder refills.

The instrument comprises an electric motor and air receiver mounted together on a single casting. Extensive tests prior to production ensure that this unit will prove to be entirely satisfactory for use in conjunction with the EEL Flame Photometer. It is neat, compact and portable. Dimensions are given below the illustration.

Overall Length - - -	9¼ *inches*
Overall Height - - -	6½ *inches*
Overall Width - - -	5½ *inches*
Total Weight - - -	15 *lbs.*

The Air Compressor is of the rotary sliding vane type and is designed for immediate use under the following working conditions:—

Air pressure - - -	10-16 lbs/sq. in.
Flow - - - -	5-6 litres/minute
Operating Temperature -	30°C above ambient

A safety vent operating on the ball valve and spring principle is fitted and will prevent the air pressure from exceeding a maximum of 16 lbs/sq. in.

Electric Motor. This is a single-phase motor having a current consumption of approximately 1/10 h.p. (100-150 watts). A three-core flexible lead is fitted. by which the motor may be connected to the mains supply. Standard units are provided for use on 220-250 volts, 50 cycle A.C. mains supply. Other ratings are available if required.

The Air Receiver is incorporated in the base casting. Noise is reduced to a minimum by special attention given to the design of both this and the filters incorporated. The instrument is, therefore, quite suitable for laboratory use. Rubber tubing may be connected to the pressure nozzle which protrudes from the base casting. Filtering of the air takes place on the inlet side of the Compressor, thus ensuring that the instrument is operated by compressed air which is unaffected by oil or other contaminants. The robust construction, efficient operation and silent running properties of this Compressor ensure that this unit will provide many years of satisfactory service.

EVANS ELECTROSELENIUM LIMITED

ST. ANDREW'S WORKS, HALSTEAD, ESSEX

Telephone : Halstead 2461

Printed in England **Ref. No. 10092** *EEL* 1263